

TRANSMITTAL LETTER
(General - Patent Pending)

Docket No.
51889/5

In Patent Application Of: Douglas R. Hackler, Sr. et al.

Serial No.
10/664,666

Filing Date
September 18, 2003

Examiner

Group Art Unit

Title:

MIM Multilayer Capacitor

TO THE COMMISSIONER FOR PATENTS:

Transmitted herewith is:

Information Disclosure Statement
PTO-1449 with copies of articles and foreign patent reference
Postcard

in the above identified application.

- ☒ No additional fee is required.
- ☐ A check in the amount of _____ is attached.
- ☐ The Director is hereby authorized to charge and credit Deposit Account No. _____ as described below.
- ☐ Charge the amount of _____
- ☐ Credit any overpayment.
- ☐ Charge any additional fee required.


Signature

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Dated: November 18, 2003

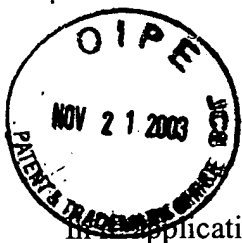
I certify that this document and fee is being deposited on Nov. 18, 2003 with the U.S. Postal Service as first class mail under 37 C.F.R. 1.8 and is addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.


Signature of Person Mailing Correspondence

John R. Thompson

Typed or Printed Name of Person Mailing Correspondence

cc:



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In ~~the~~ application of

Douglas R. Hackler, Sr. et al.

Confirmation No.

Application No. 10/664,666

Filed: September 18, 2003

For: **MIM Multilayer Capacitor**

Group Art Unit:

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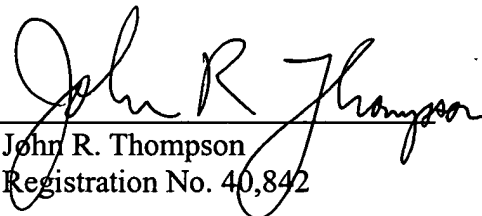
INFORMATION DISCLOSURE STATEMENT

TO THE COMMISSIONER FOR PATENTS:

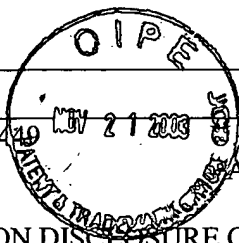
1. Pursuant to the duty of disclosure, documents listed on the accompanying Form PTO-1449 (or equivalent) are presented for the Examiner's consideration.
 - ☒ Copies of listed documents are enclosed. (37 CFR § 1.98(a))
 - ☒ Copies of listed U.S. patent documents are omitted because this application was filed after June 30, 2003 and is, thus, subject to image file wrapper processing. Copies of listed foreign patent documents and non-patent literature are enclosed.
 - ☐ Copies of the documents listed on sheet(s) _____ of Form PTO-1449 (or equivalent) are omitted because (1) they are already of record in U.S. Patent Application No. _____, filed _____, on which this application relies for an earlier filing date under 35 U.S.C. § 120; and (2) any information disclosure statement filed in the prosecution of Application No. _____, complies with 37 CFR §§ 1.98(a) through (c). (37 C.F.R. § 1.98(d))
2. ☐ The Examiner's attention is directed to the enclosed copy of copending U.S. Patent Application No. _____, filed _____, for _____, which is cited in this application.
3. This information disclosure statement is being submitted (check box a., b., or c.):
 - a. ☒ Within three months of the filing date of a national application or entry of the national stage in an international application; or before the mailing of a first Office action on the merits; or before the mailing of a first Office action after the filing of a request for continued examination under 37 CFR 1.114. (No statement under 37 CFR 1.97(e) is required.); or

- b. ☐ After the period set forth in paragraph 3a, but before the mailing date of either a final action, a notice of allowance, or an action that otherwise closes prosecution in the application. (Check box i. or ii.)
- i. ☐ A \$180.00 information disclosure statement submission fee set forth in 37 CFR 1.17(p) is enclosed, or
- ii. ☐ A statement specified by 37 CFR 1.97(e) is set forth below; or
- c. ☐ After the mailing date of a final action or notice of allowance and on or before payment of the issue fee. A statement specified by 37 CFR 1.97(e) is set forth below. Enclosed is a \$180.00 information disclosure statement processing fee set forth in 37 CFR 1.17(p).
4. If a statement specified by 37 CFR 1.97(e) is required, the attorney or agent signing below hereby states that:
- ☐ each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement; or
- ☐ no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement.
5. ☐ A concise explanation of the relevance of each document not in the English language and/or selected documents in the English language is set forth below.

Respectfully submitted,

By 
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U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICEATTY. DOCKET NO.
51889/5 USAPPLICATION NO.
10/664,666

INFORMATION DISCLOSURE CITATION

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APPLICANT – Douglas R. Hackler, Sr. et al.

FILING DATE-
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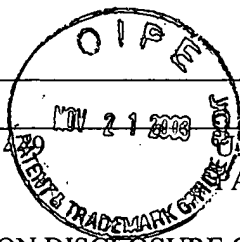
U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	1	2003/0040161 A1	02/27/03	Schrenk et al.	438	393	09/03/02
	2	2002/0192919 A1	12/19/02	Bothra	438	381	04/26/01
	3	2002/0113292 A1	08/22/02	Appel	257	532	11/08/01
	4	2002/0047154 A1	04/25/02	Sowlati et al.	257	307	04/07/00
	5	6,524,926 B1	02/25/03	Allman et al.	438	387	11/27/00
	6	6,465,832 B1	10/15/02	Maeda et al.	257	307	04/05/00
	7	6,441,419 B1	08/27/02	Johnson et al.	257	296	03/15/00
	8	6,417,535 B1	07/09/02	Johnson et al.	257	306	12/23/98
	9	6,410,955 B1	06/25/02	Baker et al.	257	307	04/19/01
	10	6,251,740 B1	06/26/01	Johnson et al.	438	381	12/23/98
	11	5,912,485	06/15/99	Chao	257	308	10/24/96
	12	5,583,359	12/10/96	Ng et al.	257	306	03/03/95
	13	5,206,787	04/27/93	Fujioka	257	307	03/27/92
	14	5,160,987	11/03/92	Pricer et al.	257	307	02/15/91
	15						
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EXAMINER

DATE CONSIDERED

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

FORM PTO-1470
(REV. 7-80)U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICEATTY. DOCKET NO.
51889/5 USAPPLICATION NO.
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FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	PUBLICA- TION DATE	COUNTRY / PATENT OFFICE	CLASS	SUBCLASS	TRANSLATION	
							YES	NO
	18	03091974 A	17.04.91	Japan				<input type="checkbox"/>
	19							
	20							
	21							
	22							
	23							
	24							
	25							

OTHER DOCUMENTS (Including Author, Title, Date, Relevant Pages, Place of Publication , etc.)

	26	Kim et al., "Development of CVD-Ru/Ta ₂ O ₅ /CVD-Ru Capacitor with Concave Structure for Multigigabit-scale DRAM Generation," 2001 IEEE, pgs. 12.1.1-12.1.4.
	27	Aoki et al., "Robust 130nm-Node Cu Dual Damascene Technology with Low-k Barrier SiCN," 2001 IEEE, pgs. 4.2.1-4.2.4.
	28	Samavati et al., "Fractal Capacitors," IEEE Journal of Solid-State Circuits, Vol. 33, No. 12, December 1998, pgs. 2035-2041.
	29	Kotecki et al., "(Ba, Sr) TiO dielectrics for future stacked-capacitor DRAM," IBM J. Res. Develop., Vol. 42, No. 3, May 1999, pg. 367-382.
	30	Media for SolidState Technology, "Interfacial reaction and thermal stability of Ta ₂ O ₅ /TiN for metal electrode capacitors," http://solidstate.articles.printhis.clickability.com/pt/cpt?action=cpt&expire=&urlID=8160 , 11/4/2003, pgs. 1-7.
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EXAMINER

DATE CONSIDERED

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